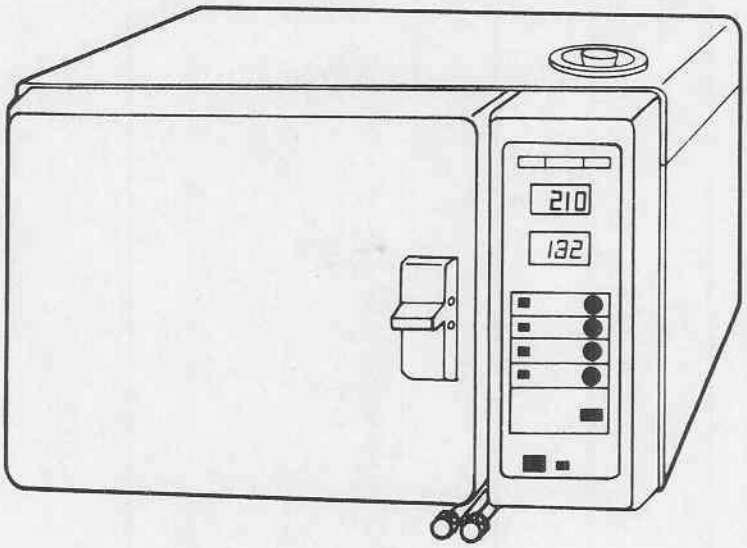
P.O. BOX 241147 Pelton & Crane CHARLOTTE, N.C. 28224

8" VALIDATOR®

parts list



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P.O. BOX 241147 Pelton & Crane CHARLOTTE, N.C. 28224

FUNCTION OF TECHNICAL SERVICE

The Technical Service Department was created to provide the best possible service to our customers. Anytime you have a technical question about our products, use our toll free Technical Information number 1-800-438-1372. This toll free number is used for questions about installing equipment, about any technical characteristic, or troubleshooting all equipment that is being analyzed in the doctor's office.

FACTORY REPAIRS

Any time parts or equipment are returned to our factory for repair, include a detailed description of the problem. An in-depth description of the problem enables our Repair Department to provide a thorough analysis. If assemblies are returned for repair, state the serial number of the unit from which those assemblies were removed along with a detailed discussion of the problem.

ORDERING PARTS

When ordering parts, be sure to list the serial number of the unit. The serial number helps in defining parts in the event a unit has been modified. Order by both description and part number. Call your Customer Service Representative at 1-800-438-5970.

P.O. BOX 241147 Pelton & Crane CHARLOTTE, N.C. 28224

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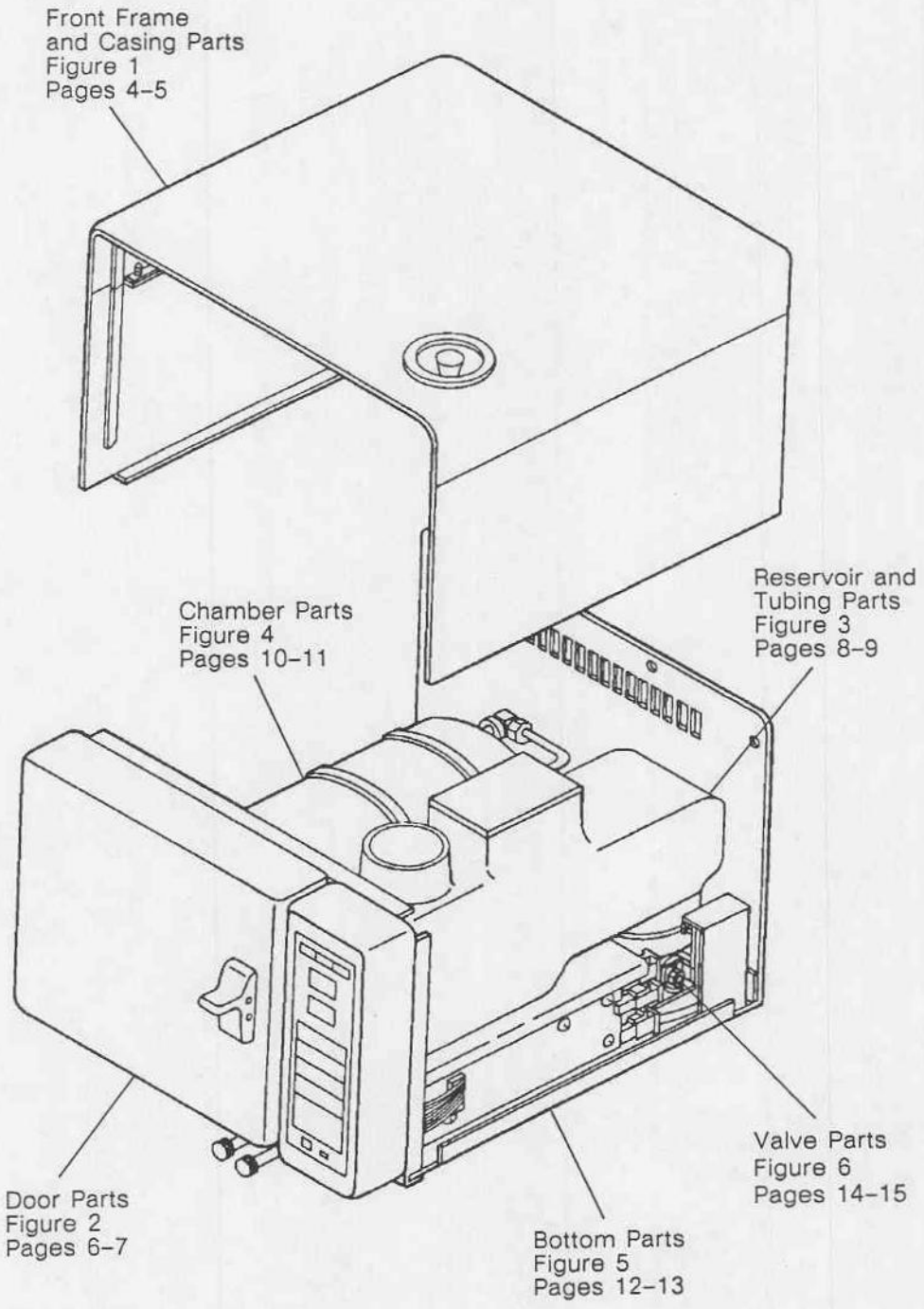


8″ VALIDATOR

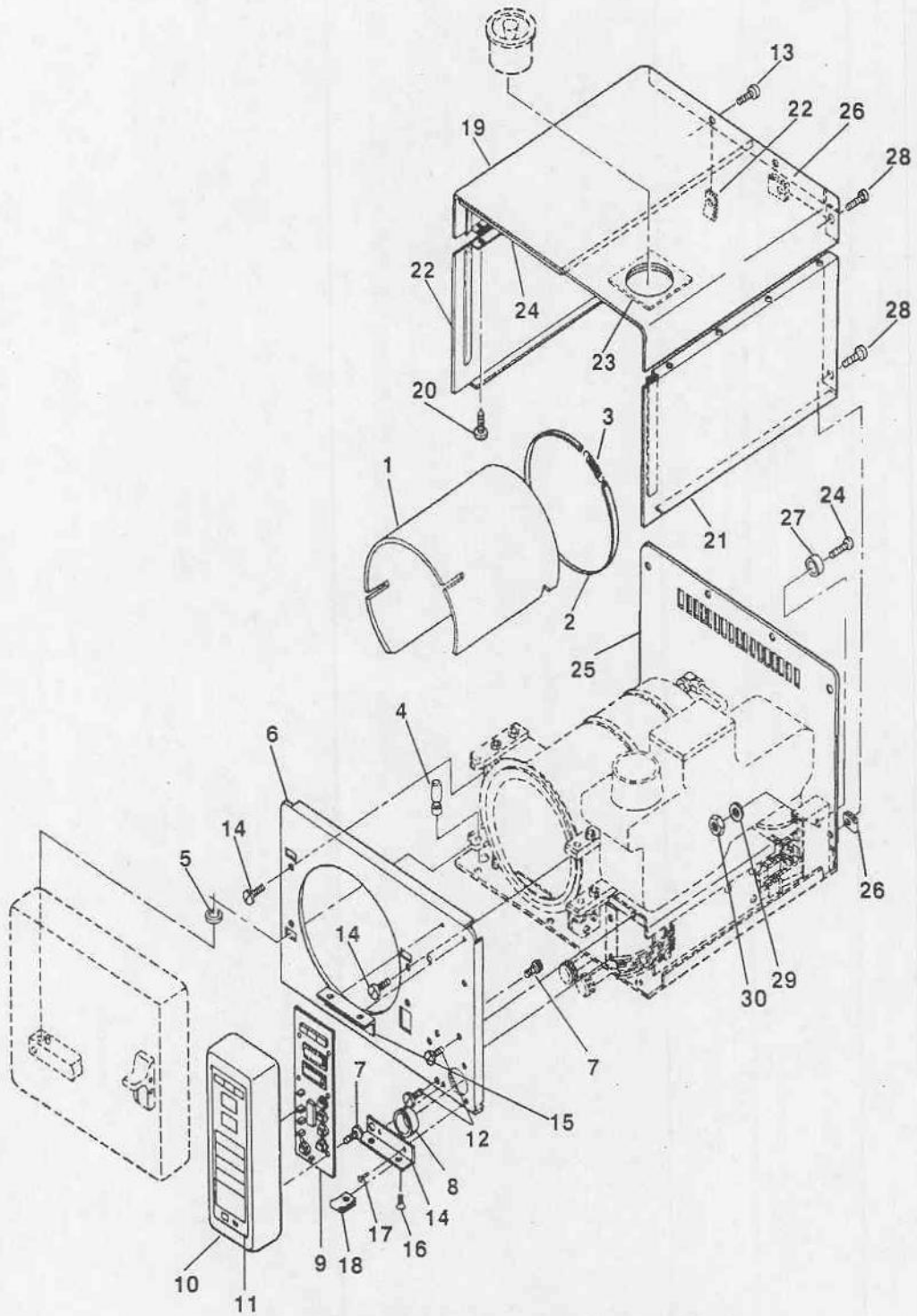


Figure 1. Front Frame and Casing Parts

FRONT FRAME AND CASING PARTS

INDEX	PART NO.	DESCRIPTION
1.	019818	Insulation – Chamber
2.	019885	Strap – Insulation
3.	019886	Spring – Extension
4.	019714	Pin – Hinge
5.	019809	Washer – Shim
*6.	019817	Faceplate and Reservoir Support Assembly
7.	090931	Screw – #6-32 X 1/4" Hex Socket Cap
8.	019810	Bushing
*9.	022763	PCB – Control Panel
10.	025659	Cover – Electronic (Smoky White)
	019814	Cover – Electronic (Almond Champagne)
11.	025660	Label – Control (Smoky White)
	019850	Label – Control (Almond Champagne)
12.	090353	Screw – #8-32 X 1/4" Pan Head Sheet Metal
13.	090457	Screw – #10-24 X 3/8" Binder Head Machine
14.	025520	Bracket – Bottom
15.	025521	Bracket – Top
16.	090794	Screw – #8-32 X 3/8" Flat Head Machine
17.	090857	Rivet – Pop
18.	006142	Nut – Speed

CASE ASSEMBLY 022289 (Smoky White) (For Repair Only)
019876 (Brown) (For Repair Only)

19.	025656	Case-Top (Smoky White)
	019815	Case-Top (Brown)
20.	090568	Screw – #8-3/8" Pan Head Self Tapping
21.	025658	Case – Right Side (Smoky White)
	019875	Case – Right Side (Brown)
22.	025657	Case – Left Side (Smoky White)
	019874	Case – Left Side (Brown)
23.	019834	Gasket – Reservoir
24.	019877	Insulation – Top
25.	025666	Panel – Rear (Smoky White)
	019624	Panel – Rear (Brown)
26.	023334	Clip – Speed
27.	006164	Bumper
28.	090299	Screw – #10-24 X 3/8" Binder Head Machine
29.	090380	Lockwasher – Internal Tooth
30.	090407	Nut – Hex

*THESE PARTS SOLD ONLY AS ASSEMBLIES.

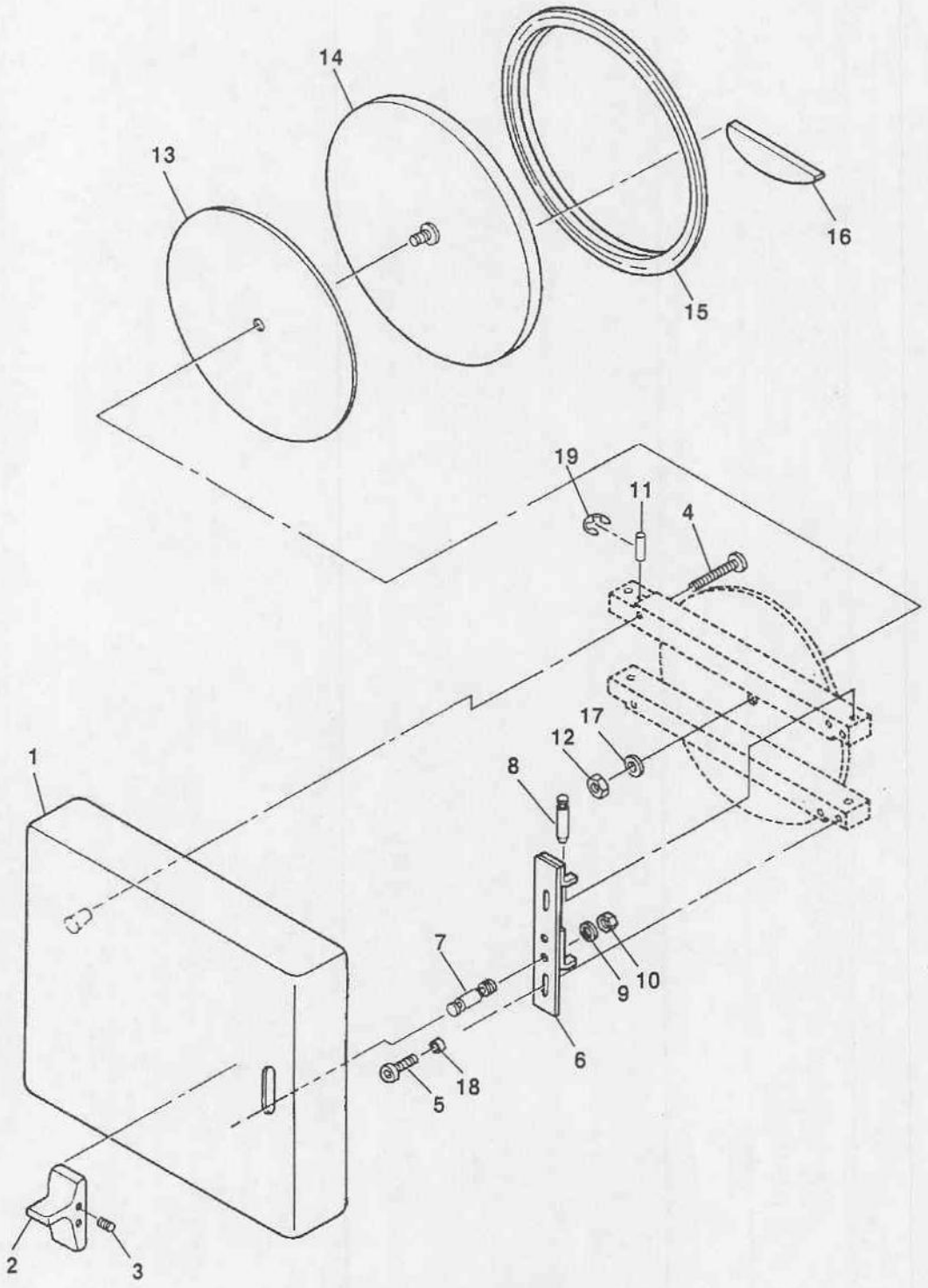


Figure 2. Door Parts

DOOR PARTS

INDEX	PART NO.	DESCRIPTION
1.	025304	Cover - Door (Smoky White)
	019700	Cover - Door (Almond Champagne)
2.	025668	Handle (Granite)
	019675	Handle (Brown)
3.	090246	Screw - #6-32 X 3/8" Socket Set
4.	090096	Screw - #8-32 X 1-1/4" Round Head Machine

FRAME, CHAMBER AND DOOR PARTS

5.	090947	Screw - 1/4-20 X 3/8" Button Head Machine
*6.	020857	Slide Assembly (must be ordered as pair with 019703)
7.	019703	Stud - Door (must be ordered as pair with 020857)
8.	019738	Pin - Latch
9.	090373	Lockwasher - Spring
10.	090411	Nut - Hex
11.	019933	Pin - Dowel
12.	090410	Nut - Hex
13.	021812	Insulation - Door
*14.	019617	Gasket Retainer
15.	019613	Gasket
16.	019678	Spacer
17.	090372	Lockwasher - Spring
18.	019608	Spacer - Latch Slide
19.	025552	E - Clip

*THESE PARTS SOLD ONLY AS ASSEMBLIES.

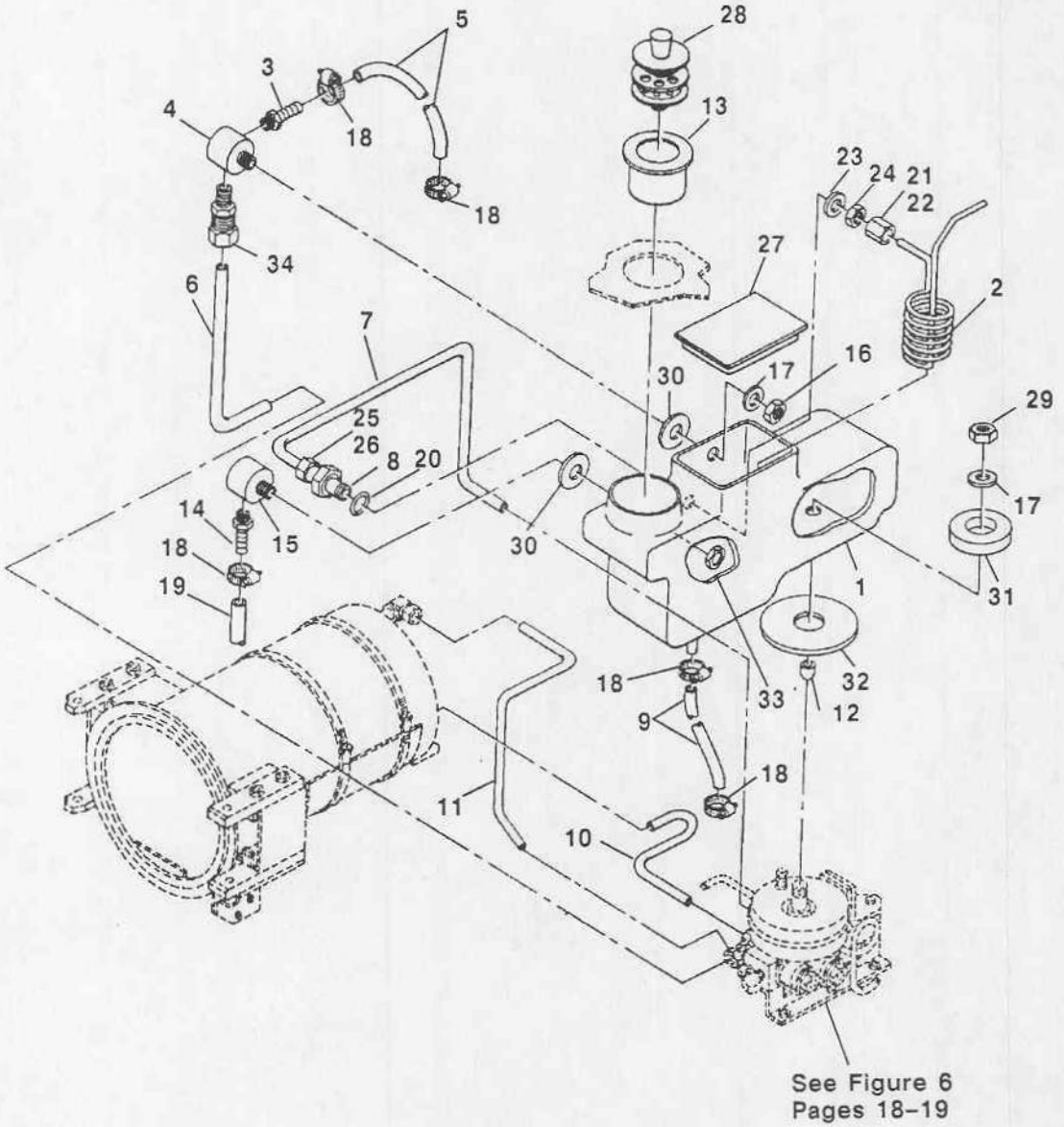


Figure 3. Reservoir Tubing and Parts

RESERVOIR TUBING AND PARTS

INDEX	PART NO.	DESCRIPTION
1.	019698	Reservoir
2.	020835	Condenser
*3.	024979	Barb – 1/4" Hose
4.	024795	Manifold – Reservoir
5.	019856	Hose – Fill Tank Vent
6.	020836	Tube – Reservoir Dump
7.	019821	Tube – Return
8.	019837	Coupling – Vent Condenser
9.	019852	Hose – Reservoir Drain
10.	020824	Tube – Fill
11.	020823	Tube – Chamber Dump
12.	019931	Stopper – Reservoir
13.	019709	Cup – Reservoir Fill
14.	024978	Barb – 3/8" Hose
15.	024977	Manifold – Reservoir Overflow
16.	092800	Nut – Brass Jam
17.	092801	Washer – Flat Brass
18.	024984	Clamp – Hose
19.	019681	Hose – Overflow
20.	004840	0-Ring
21.	004249	Nut – Condenser Tube
22.	004008	Sleeve – Compression
23.	090473	Washer – Flat
24.	004245	Nut – Air Valve
25.	004058	Sleeve – Compression
26.	004062	Nut – Compression
27.	019702	Cap – Reservoir

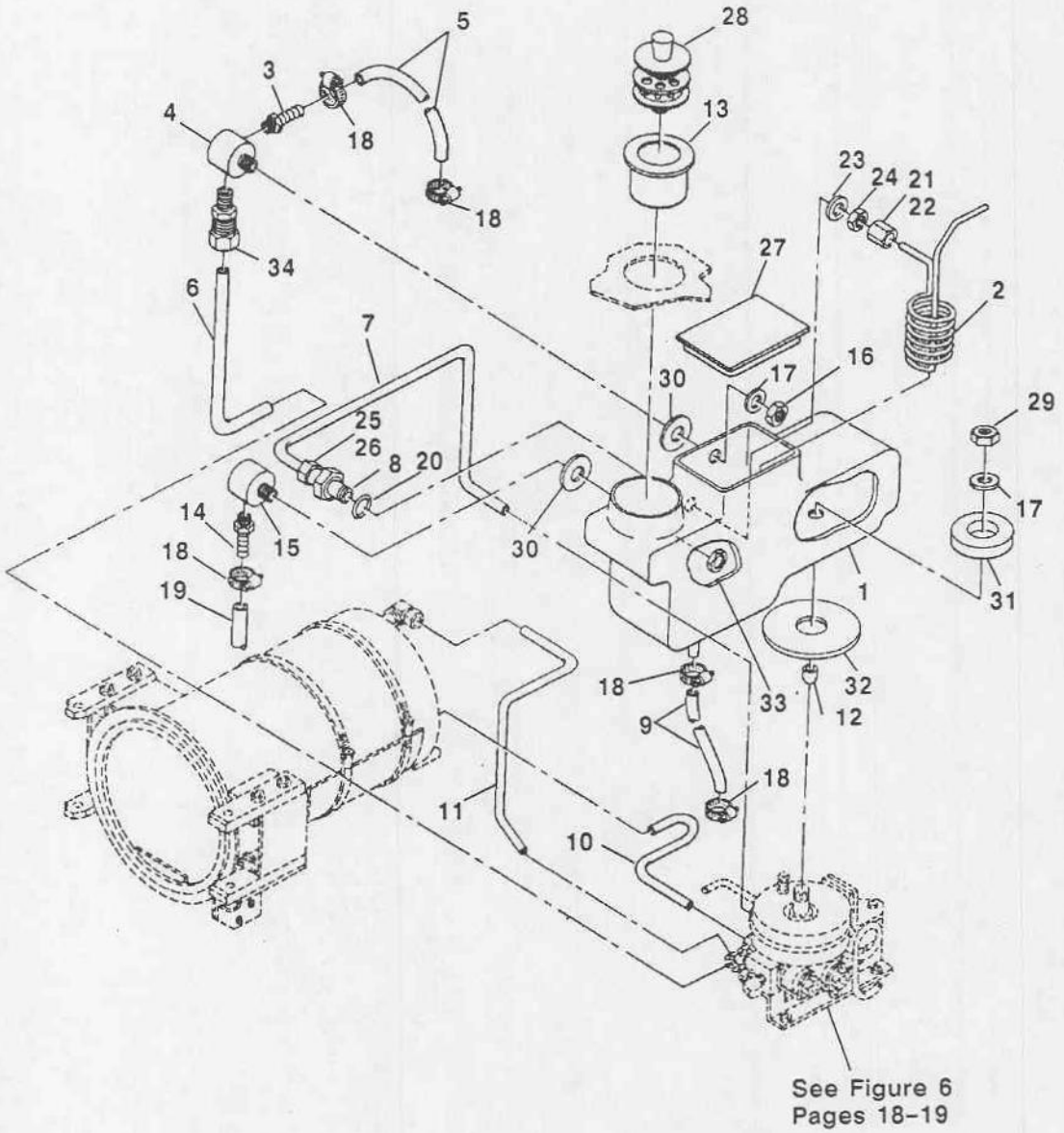


Figure 3. Reservoir Tubing and Parts

RESERVOIR TUBING AND PARTS

INDEX	PART NO.	DESCRIPTION
*28.	019679	Reservoir Cover Assembly (For Repair Only)
29.	092796	Nut – Brass Hex
30.	024983	Washer – Manifold
31.	024982	Washer – Reservoir
32.	024981	Spacer – Fill Tank
33.	024999	Nut – Jam
34.	005022	Union Tube Connector

*THESE PARTS SOLD ONLY AS ASSEMBLIES.

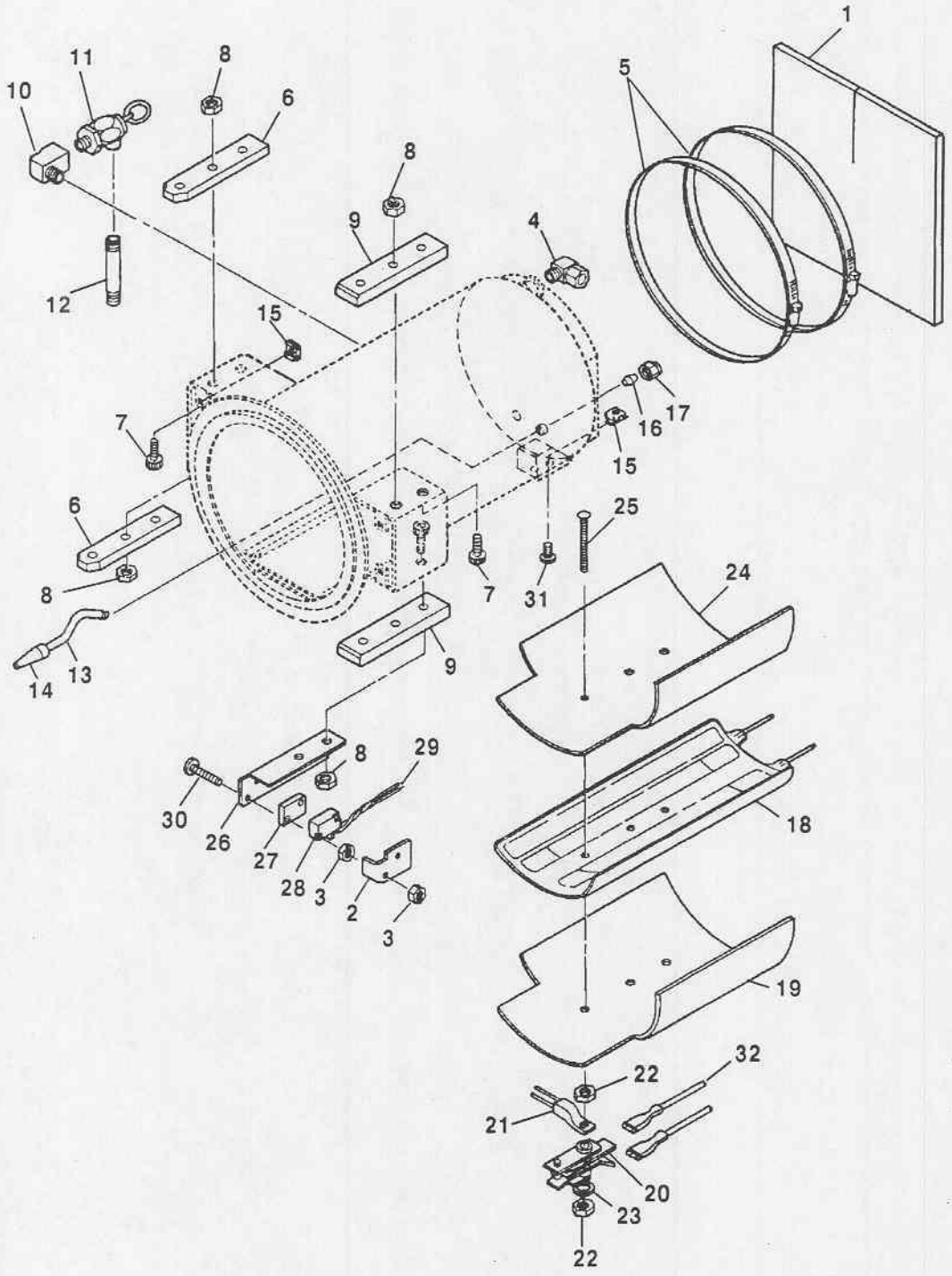


Figure 4. Chamber Parts

CHAMBER PARTS

INDEX	PART NO.	DESCRIPTION
1.	004133	Insulation – Rear
2.	019710	Cover – Door Switch
3.	090401	Nut – Hex
4.	005580	Elbow – Filter
5.	004080	Band – Pressure Plate
6.	019713	Bar – Hinge
7.	090944	Screw – 5/16 – 18 X 3/4" Socket Cap
8.	090411	Nut – Hex
9.	019712	Bar – Latch
10.	005428	Elbow – 1/2" Street
11.	004146	Valve – Safety Relief
12.	019824	Nipple
13.	004371	Tube – Chamber Filter
14.	004326	Filter – Fill Line
15.	004086	Nut – Retainer
16.	004058	Sleeve – Compression
17.	004062	Nut – Compression
*18.	019813	Heater and Plug Assembly (120 VAC)
	021891	Heater and Plug Assembly (100 VAC)
	019944	Heater and Plug Assembly (240 VAC)
19.	019882	Plate – Pressure
20.	019615	Thermostat
*21.	019855	Heat Sensor Assembly
22.	090053	Nut – Hex
23.	090375	Lockwasher – External Tooth
*24.	019843	Heater Plate
25.	019614	Stud – 6/32 X 1" Threaded
26.	020859	Bracket
27.	019705	Spacer
28.	019706	Switch
*29.	019694	Wire Assembly – Door Switch
30.	090958	Screw – #4–40 X 1" Pan Head Sheet Metal
31.	090457	Screw – #10–24 X 3/8" Binder Head Machine
32.	019671	Overheat Protector

*THESE PARTS SOLD ONLY AS ASSEMBLIES.

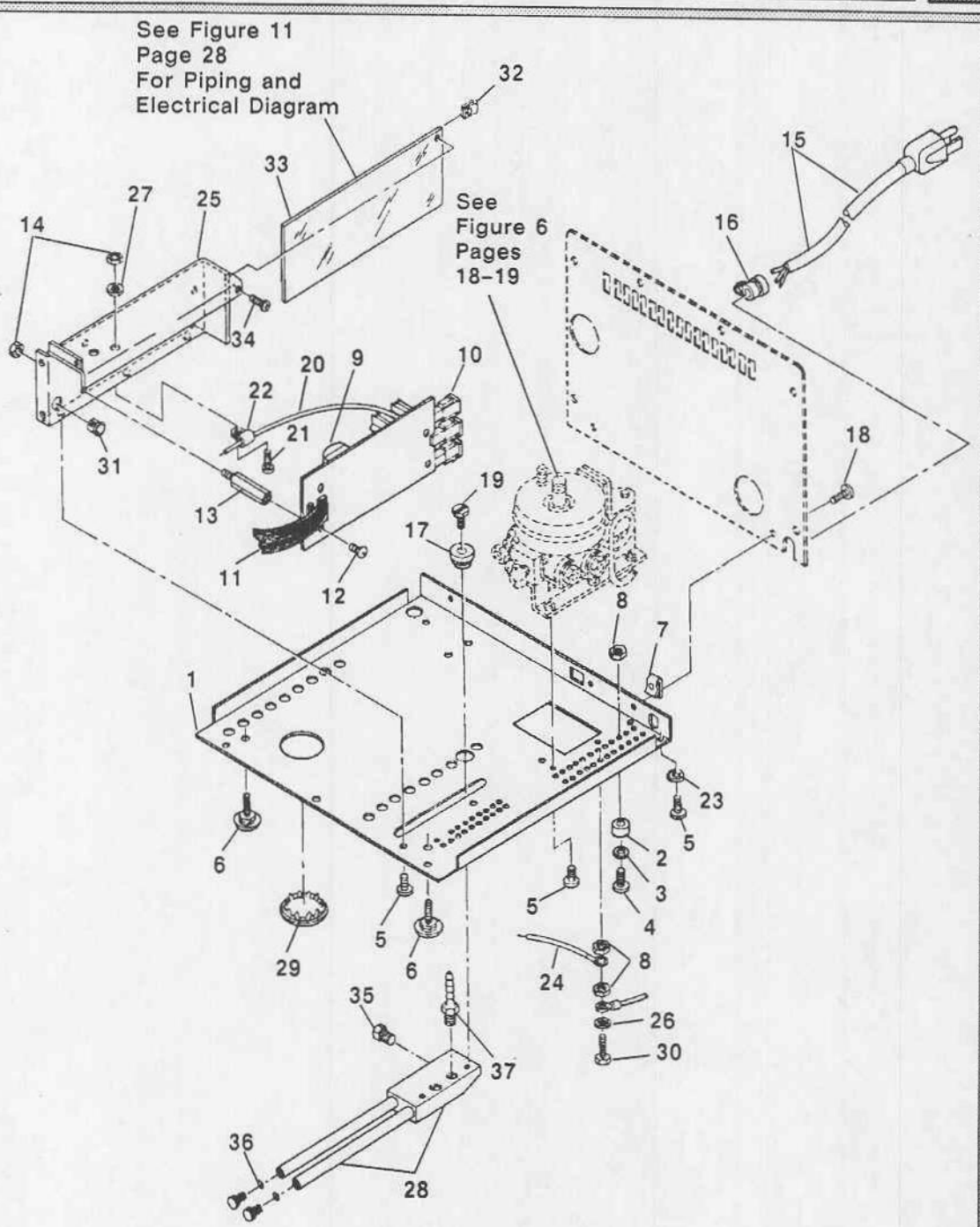


Figure 5. Bottom Parts

BOTTOM PARTS

INDEX	PART NO.	DESCRIPTION
*1.	019840	Bottom Assembly
2.	006164	Foot
3.	090391	Washer – Foot
4.	090301	Screw – #10-24 X 1/2" Binder Head Machine
5.	090457	Screw – #10-24 X 3/8" Binder Head Machine
6.	019830	Glide – Adjustable Swivel
7.	023334	Clip – Speed
8.	090407	Nut – Hex
*9.	022953	PCB – Power Supply (120 VAC)
	024798	PCB – Power Supply (100 VAC)
	025186	PCB – Power Supply (240 VAC)
10.	018466	Plug – Connector
11.	019682	Cable – Control to Power
12.	090170	Screw – #6-32 X 1/4" Round Head Machine
13.	019670	Standoff – Spacer
14.	090403	Nut – Hex
*15.	020860	Line Cord Assembly (120 VAC)
	019829	Line Cord Assembly (100 & 240 VAC)
16.	016117	Bushing – Cord
17.	020827	Glide – Drain
18.	090299	Screw – #10-24 X 3/8" Binder Head Machine
19.	090614	Screw – #10-24 X 1/2" Hex Washer Head Machine
20.	019779	Triac Assembly
21.	090723	Screw – #6-32 X 3/8" Phillips Pan Head Machine
22.	006823	Clip – Cord
23.	090976	Lockwasher – External Tooth
*24.	019689	Wire Assembly – Ground
25.	019605	Mount Assembly – Power Supply
26.	090380	Lockwasher – Internal Tooth

*THESE PARTS SOLD ONLY AS ASSEMBLIES.

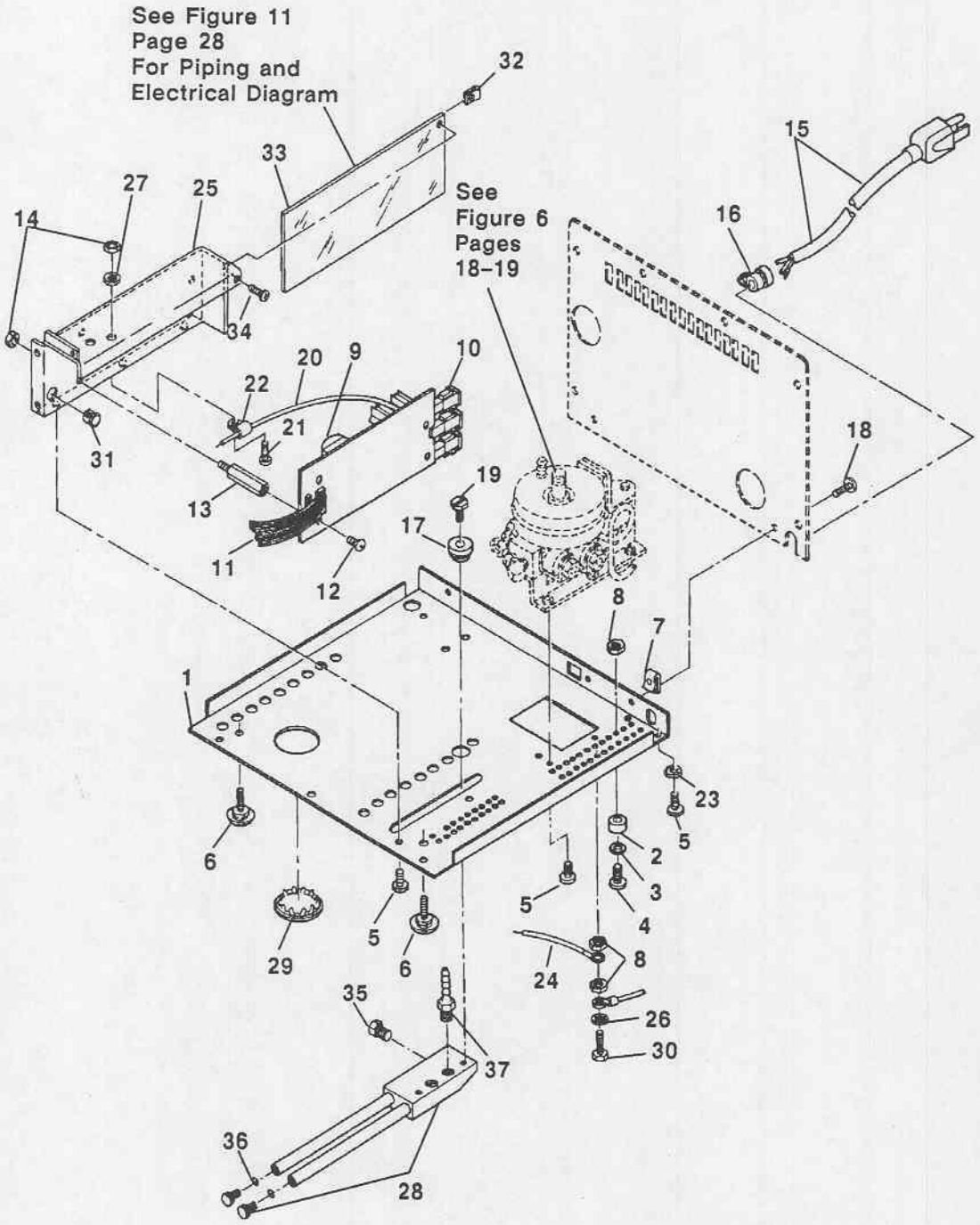


Figure 5. Bottom Parts

BOTTOM PARTS

INDEX	PART NO.	DESCRIPTION
27.	090377	Lockwasher – Internal Tooth
28.	022184	Dual Drain & Cap Assembly (Charcoal Black) (serial no. 8570 – up)
	019686	Single Drain Assembly (serial nos. 1001 – 8569)
	022179	Cap Only (Charcoal Black)
29.	021953	Plug – 2 1/4" Hole
30.	090973	Screw – #10–24 X 1/2" Ground
31.	007440	Bushing
32.	006142	Clip – Speed
33.	019785	Wire Guard
34.	090564	Screw – #8–32 X 1/4 Phillips Binder Head
35.	008209	1/8" Plug
36.	011982	O–Ring
37.	019890	Barb

*THESE PARTS SOLD ONLY AS ASSEMBLIES.

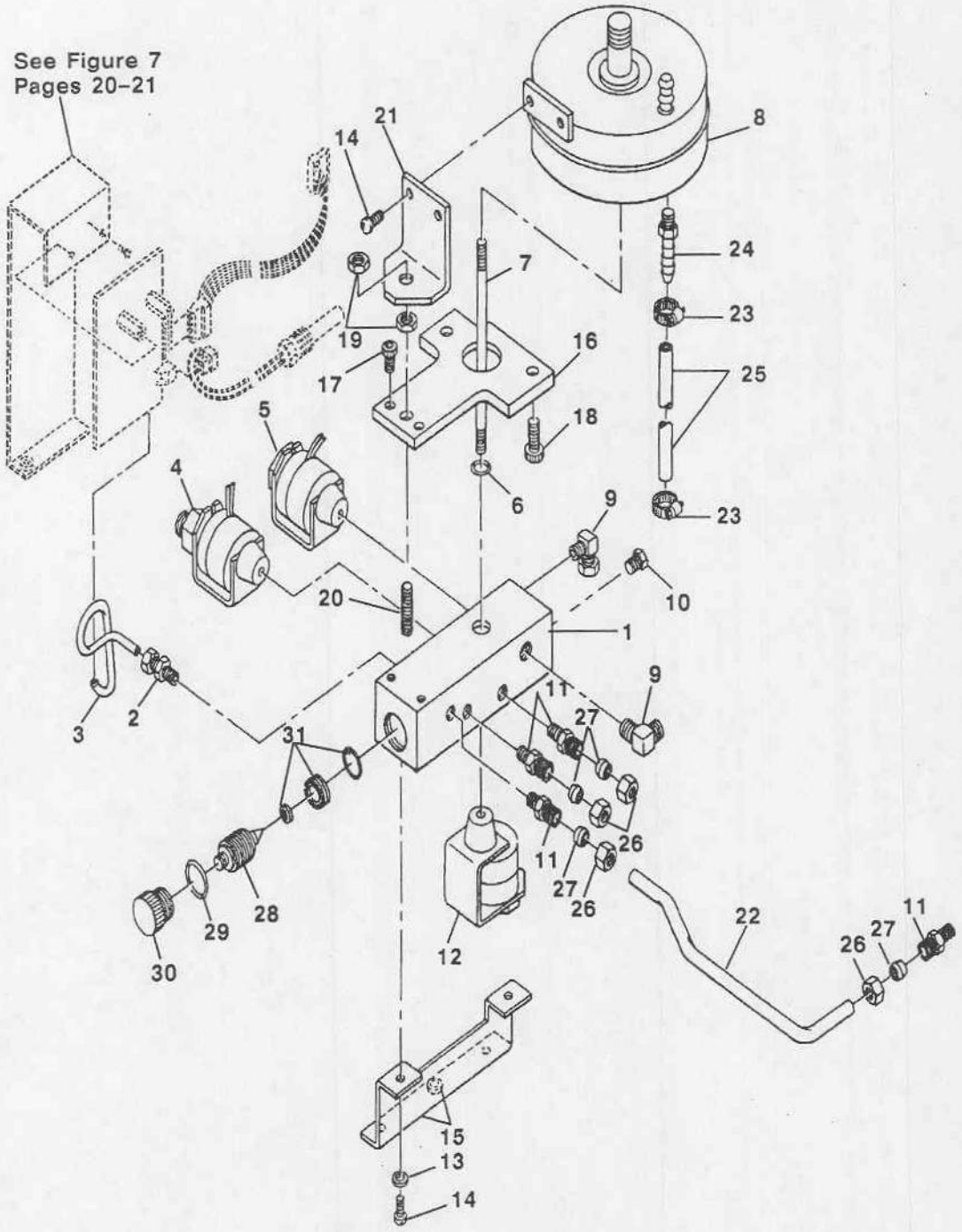


Figure 6. Valve Assembly

VALVE PARTS

INDEX	PART NO.	DESCRIPTION
1.	020821	Valve Block
2.	019669	Fitting – Compression
3.	019822	Tube – Pressure Sensor
*4.	020850	Valve Operator – Vent Assembly
*5.	020851	Valve Operator – Dump Assembly
6.	001214	O-Ring
7.	019929	Stem – Valve Fill
8.	019711	Tank Assembly
9.	005580	Elbow
10.	008209	Plug
11.	004006	Union – Valve
*12.	020852	Valve Operator – Fill Assembly
13.	090380	Lockwasher – Internal Tooth
14.	090099	Screw – #10-24 X 1/4" Round Head Slotted Machine
15.	020828	Bracket – Valve Assembly
16.	024794	Fill Tank Adjustment Plate
17.	090558	Screw – #10-24 X 3/8" Flathead Cap Hex Socket
18.	090201	Screw – 1/4-20 X 5/8" Flathead Cap Hex Socket
19.	090410	Nut – Hex
20.	092798	Screw – 1/4-20 X 1-3/8" Stud
21.	022056	Fill Tank Adjustment Angle
22.	025007	Vent Tube
23.	024984	Clamp – Hose
24.	019890	Barb – 1/4" Hose
25.	025295	Hose – Drain
26.	004062	Nut – Compression
27.	004058	Sleeve – Compression

BELLOWS AND CAP ASSEMBLY 011047

28.	004048	Bellows
29.	004004	O-Ring
30.	004228	Cap
*31.	025580	Valve Seat Replacement Kit

*THESE PARTS SOLD ONLY AS ASSEMBLIES.

NOTE: For Replacement of valve block with permanently installed seat (manufactured before October1988) substitute no. 020821 Valve Block and no. 025580 Valve Seat Replacement Kit.

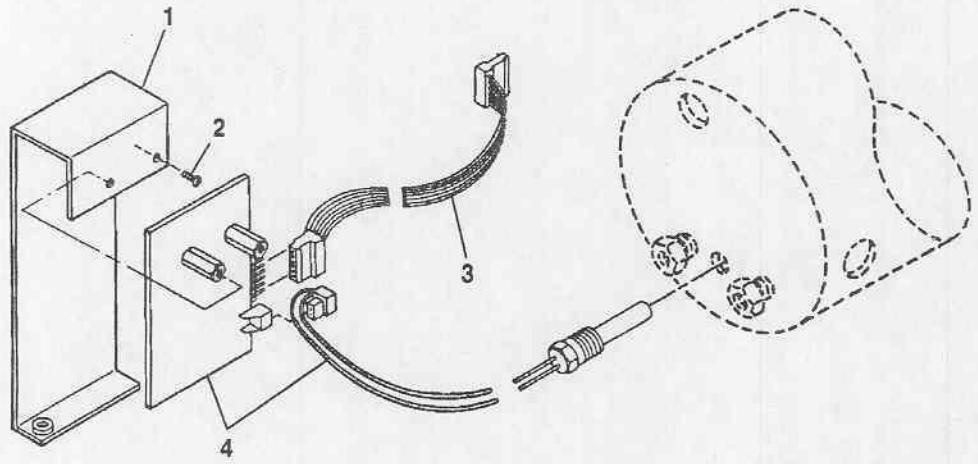
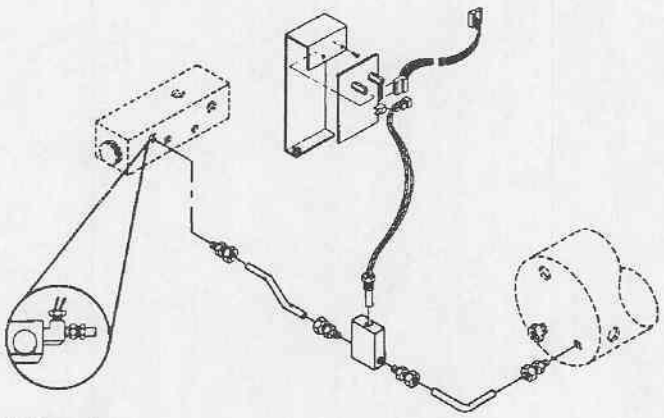
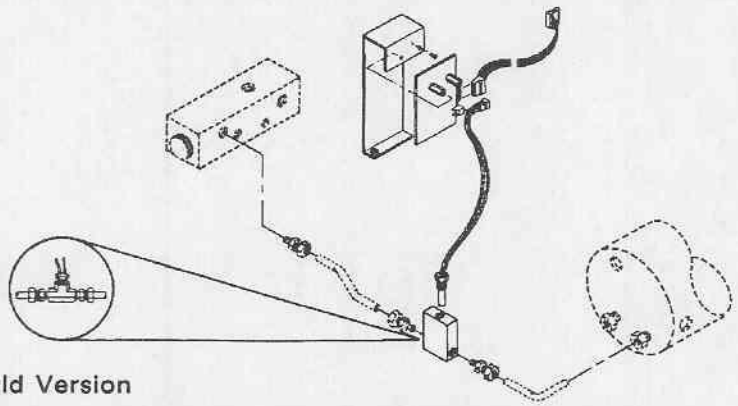


Figure 7. Heat Sensor Replacement Kit C (Serial Nos. 4933 and up)



Old Version

Sensor Modification Kit A (Serial Nos. 1001–1876)



Old Version

Sensor Modification Kit B (Serial Nos. 1877–4932)

SENSOR KITS

INDEX	PART NO.	DESCRIPTION
1.	019783	Bracket – Temp/Sens Module
2.	090798	Screw – #4–40 X 1/2" Round Head Machine
*3.	019691	Cable Assembly – Temp/Pres Module
4.	023338	Heat Sensor Modification Kit A (Long Sensor, Board, Block, Fittings) (For replacement of sensor on units with serial nos. 1001–1876 [not previously modified] use Modification Kit A, no. 023338.)
	023339	Heat Sensor Modification Kit B (Long Sensor, Board, Block) (For replacement of sensor on units with serial nos. 1001–1876 [modified with "tee" in tubing] and serial nos. 1877–4932 with "tee" in tubing, use Modification Kit B, no. 023339.)
	023340	Heat Sensor Replacement Kit C (Long Sensor, Board) (For replacement of sensor in adapter fitting with serial nos. 1001–4933, [previously modified] or in chamber with serial no. 4933 and up, use Replacement Kit no. 023340.)

*THESE PARTS SOLD ONLY AS ASSEMBLIES.

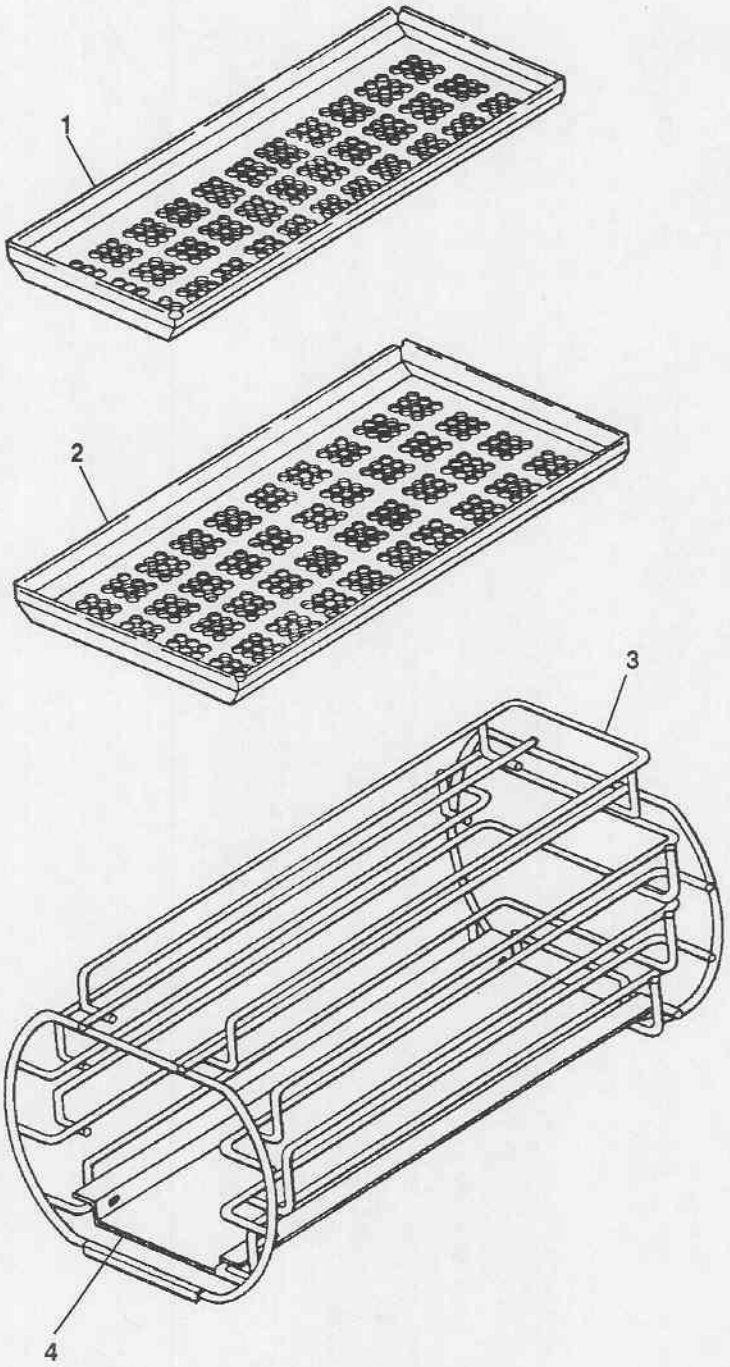


Figure 8. Trays and Tray Rest

TRAYS AND TRAY REST

INDEX	PART NO.	DESCRIPTION
1.	020854	Tray – Small
2.	020855	Tray – Large
3.	019851	Tray Rest Assembly
4.	019777	Baffle – Chamber

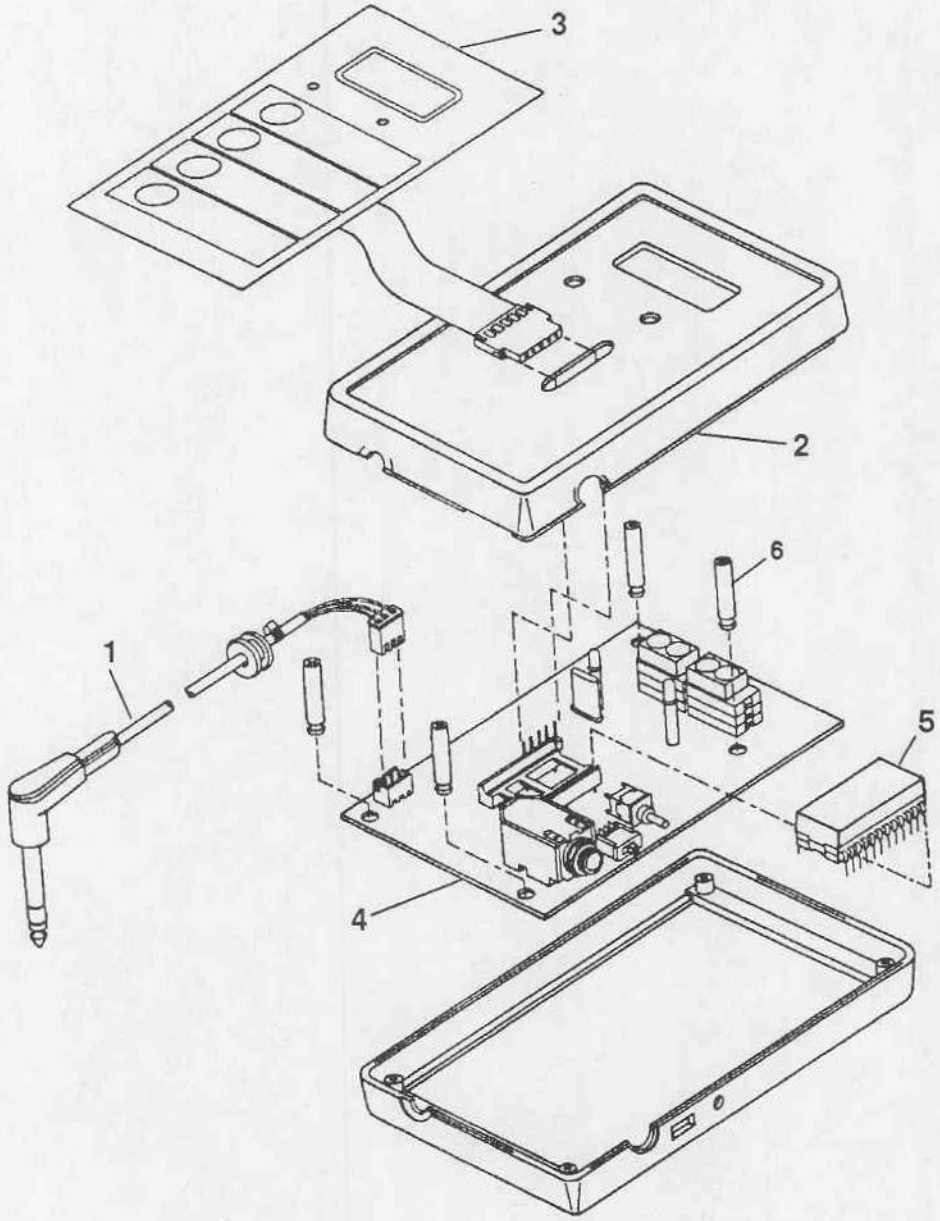


Figure 9. Time/Temperature Recorder Interface Assembly
(Optional Equipment)

TIME/TEMPERATURE RECORDER (OPTIONAL)
INTERFACE ASSEMBLY 94 31 594

INDEX	PART NO.	DESCRIPTION
1.	94 31 602	Interface Cable
2.	94 31 636	Interface Housing (Almond Champagne)
	94 31 883	Interface Housing (Charcoal Black)
3.	94 31 750	Interface Membrane (Brown)
	94 34 895	Interface Membrane (Charcoal Black)
4.	94 31 743	Printed Circuit Board Assembly
5.	77 25 278	Clock Chip/Battery (Printer Interface)
6.	94 31 644	Spacer - PCB

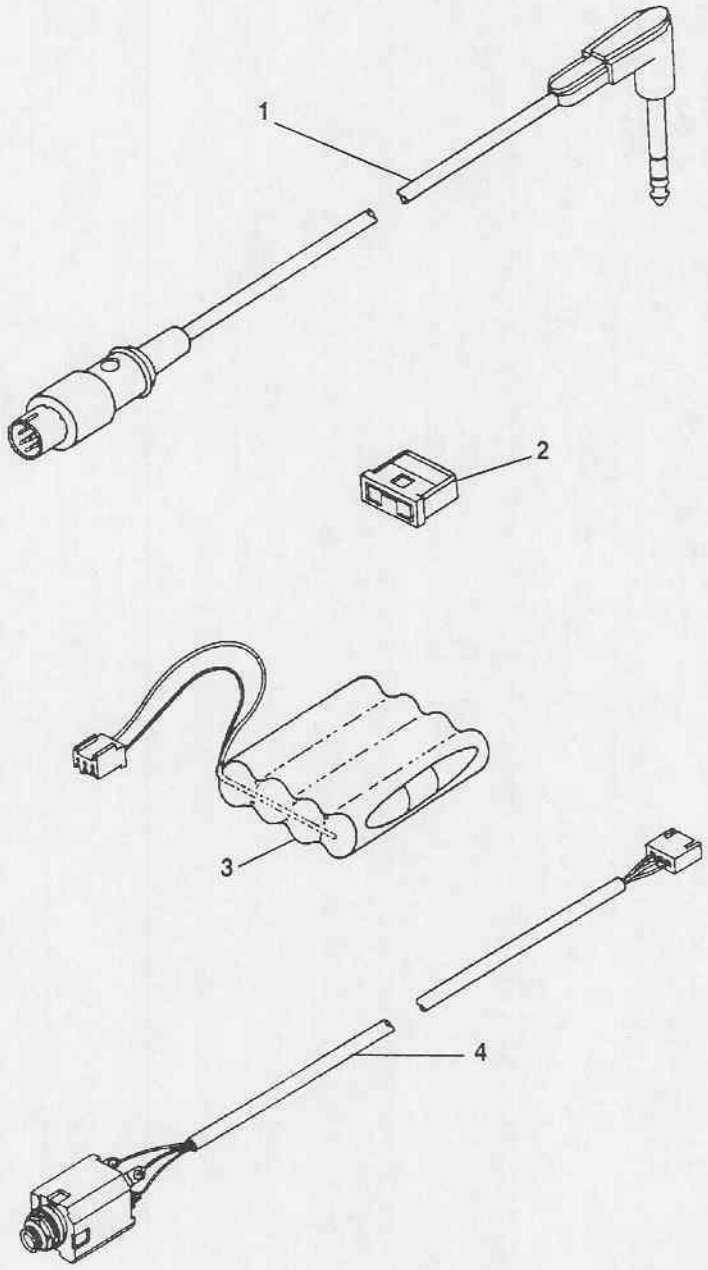


Figure 10. Time/Temperature Recorder Printer Wiring for Validator
(Optional Equipment)

P.O. BOX 241147 Pelton & Crane CHARLOTTE, N.C. 28224

TIME/TEMPERATURE RECORDER PRINTER WIRING FOR VALIDATOR

INDEX	PART NO.	DESCRIPTION
1.	94 31 776	Printer Jack Cable
2.	77 23 463	Shunt
3.	94 31 693	Battery Pack (Printer)
4.	019894	Printer Jack Cable Assembly

*Thermal Printer (with transformer) (120 VAC)	94 31 701
120 VAC transformer only	94 34 861
*Thermal Printer (with transformer) (240 VAC)	94 31 719
240 VAC transformer only	94 34 879
*Thermal Printer (with transformer) (100 VAC)	94 31 727
100 VAC transformer only	94 34 887

*These parts sold only as assemblies.

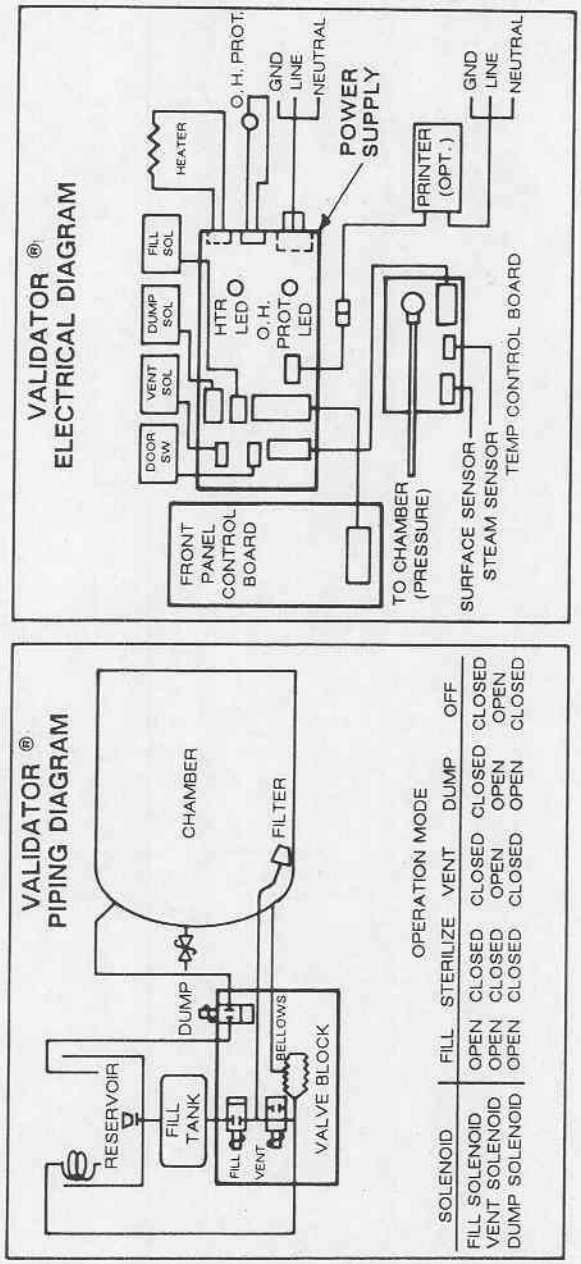
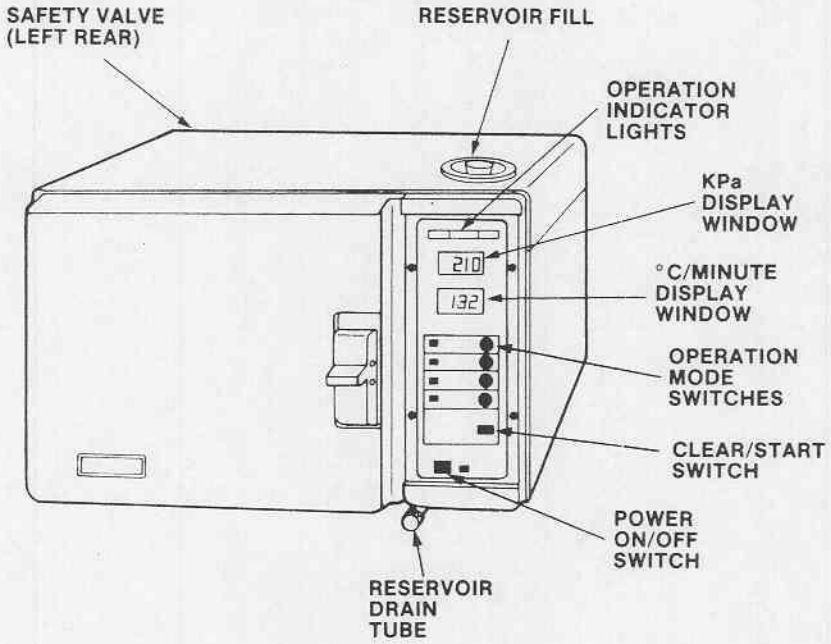


Figure 11. Piping and Electrical Diagram

8" Validator® Autoclave

Specifications & Technical Data



1.00 GENERAL

1.01 The 8" Validator autoclave shall be capable of being used as a sealed pressure-type, sterilizer with saturated steam up to 210 kPa. It is designed and constructed to meet the requirements of the ASME Boiler and Pressure Vessel Code.

1.02 The overall dimensions shall be 17-1/2" (44.5 cm) wide x 19-1/2" (49.5 cm) deep, add 1" (2.54 cm) to include door handle in depth, x 12-1/4 " (31.1 cm) high and shall have an approximate weight of 72 pounds (32.6 kg). The usable chamber shall measure 8-1/4" (21.0 cm) inside diameter x 14" (35.6 cm) deep.

1.03 The autoclave shall be capable of being used on 110-120 volts, 50-60 hertz alternating current (8.7 amperes nominal). Optional models shall be capable of working on 220-240 volts, 50-60 hertz current (4.4 amperes nominal), or 90-110 volts, 50-60 hertz current (10.6 amperes nominal). The autoclave shall be connected to the line voltage with a 3-wire, grounding line cord. The 110-120 volt unit shall be listed by ETL and Canadian Standards Association.

1.04 Start up time to 132° C shall be 11 minutes from a warm start, 25 minutes from a cold start. Total cycle time in the UNWRAPPED mode shall be 14 minutes from a warm start, 28 minutes from a cold start.

1.05 All controls shall be low voltage and shall be centrally located on the front panel, away from the chamber heat. All exterior areas of the housing shall be able to be touched without risk of burns. Operating instructions shall be provided on the exterior housing and on a wall card.

2.00 OPERATION

2.01 When the POWER switch is depressed, power shall be supplied, and the autoclave shall be ready for operation.

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Pelton & Crane

P.O. Box 241147 • Charlotte, NC 28224 • U.S.A.
1-800-438-1372 • 1-704-588-2676 • Telex 57-5192

2.02 Programmed Operations—There shall be four programmable operations:

UNWRAPPED	for loose instruments.
WRAPPED	for instruments wrapped in towels or cloth.
PACKS	for instruments packaged in paper or plastic packs.
LIQUIDS	for sterilizing solutions or agars.

2.03 Selection of operation shall be made by pressing the switch to the right of the desired program. Red light shall come on to the left of the program selection to verify operation.

2.04 Depressing the CLEAR/START switch shall start the sterilization program. The start of operation shall be verified by the °C/Min window reading FILL. The required amount of distilled water shall be automatically dispensed from the reservoir. Once the correct water level is reached in the chamber, the °C/Min window shall display the internal temperature of the autoclave and the red STERILIZE indicator shall be illuminated. Chamber fill shall take approximately one minute.

2.05 The temperature rise shall be indicated by the °C/Min window. The pressure rise shall be displayed in one kPa increments in the kPa window. The temperature and pressure shall continue to rise until programmed values are reached. The programmed values shall be:

UNWRAPPED	132.2°C—210 kPa for 3 minutes
WRAPPED	132.2°C—210 kPa for 12 minutes
PACKS	121.1°C—128 kPa for 30 minutes
LIQUIDS	121.1°C—128 kPa for 30 minutes

2.06 Once the programmed sterilization temperature has been reached, the readout of the °C/Min window shall change and begin a countdown display of the remaining time for sterilization. The red STERILIZE light shall begin to flash indicating the sterilization cycle is in progress.

2.07 When the remaining time is 0:00, automatic venting shall occur. As venting occurs, the red STERILIZE indicator shall be constantly illuminated until the chamber pressure reaches zero.

2.08 To prevent boil overs in the LIQUIDS cycle, venting shall not occur until pressure drops to 20.6 kPa instead of at the end of the sterilization cycle. There is no drying cycle in the LIQUIDS program.

2.09 Once the chamber pressure has been vented, the red STERILIZE light shall extinguish and the unit shall beep five times, signaling the beginning of the dry cycle. The yellow DRY light and the green READY light shall come on and begin to flash, indicating the contents are sterilized and the door may be safely opened.

2.10 The drying cycle time shall be 30 minutes, but may be stopped earlier if desired. Once the flashing green READY light is on, the contents of the autoclave may be removed at any time during the drying cycle. The yellow DRY light and the green READY light shall continue to flash through the drying cycle. The lapsed drying time shall be indicated in the °C/Min window and begin at 0:00 and count up to 30:00 min.

2.11 At the end of the drying cycle the unit shall beep 10 times, the yellow DRY light shall extinguish, and the green READY light shall continue to flash. The °C/Min window shall flash END and the heaters shall automatically shut off.

3.00 DIAGNOSTICS

3.01 SELF CHECK—The unit shall perform a self check on certain key components by pressing the CLEAR/START switch while at the same time pressing then releasing the POWER switch. A beep shall indicate the beginning of the self-diagnostics.

3.02 A display in the °C/Min window shall verify operation of components. The diagnostic sequence number displayed with the word GO shall indicate a satisfactory check. The number and the word NO shall indicate an unsatisfactory check. The diagnostic sequence shall continue through all eight checks indicating satisfactory or unsatisfactory at each number. At the end of the check sequence the highest number with unsatisfactory check shall be displayed in the °C/Min window. As each problem is corrected, the next highest number with unsatisfactory check shall be displayed until all diagnostic checks are satisfactory.

3.03 The sequence number and item to be checked shall be as follows:

1 PRESSURE SENSOR—electrical continuity.

2 EXHAUST STEAM TEMPERATURE SENSOR —electrical continuity.

3 CHAMBER TEMPERATURE SENSOR—electrical continuity.

4 CONTROL PANEL DISPLAY—illuminates all segments for visual inspection.

5 CONTROL PANEL LIGHTS—illuminates lights for visual inspection.

6 VENT SOLENOID—solenoid operation and electrical continuity.

7 FILL SOLENOID—solenoid operation and electrical continuity.

8 EXHAUST SOLENOID—solenoid operation and electrical continuity.

3.04 OPERATIONAL WARNING—An operational malfunction shall be indicated by a flashing display in the °C/Min window. A beeper shall sound for approximately one minute. Any pressure in the chamber shall be automatically vented to the atmosphere. The following displays shall indicate a malfunction:

DOOR Shall indicate door is not fully closed to allow cycle to begin.

H_2O Shall indicate no water in the chamber.

FAIL Shall indicate sterilization cycle has failed due to inadequate supply of water in the chamber to generate the steam required for sterilization.

PRES Shall indicate an over pressure in the system.

SENS Shall indicate loss of electrical continuity in chamber surface temperature sensor.

4.00 CONSTRUCTION

4.01 CASING—Shall be constructed of stainless steel and aluminum with baked enamel finish.

4.02 INNER DOOR—Shall be type 304 stainless steel. A switch shall be incorporated to interrupt power in the sterilizer mode if door is not locked. Door shall be sealed with silicone rubber self-sealing gasket. Door cover shall be molded plastic.

4.03 CHAMBER—Shall be constructed of certified type 304, 16 gauge stainless steel and shall be insulated with ceramic fiber insulation.

4.04 HEATING ELEMENTS—Silicone rubber heating elements shall be strapped securely to the outside of the chamber. The elements shall operate with a power of 1152 watts maximum at 132 volt line voltage.

4.05 WATER RESERVOIR—The one piece plastic reservoir shall hold approximately 4-1/2 quarts (4.75 L) of water and shall receive steam condensate and unused water from the chamber. Reservoir shall be able to be drained from front of the sterilizer by means of a sliding tube.

4.06 CONTROLS—The autoclave shall be controlled by a microprocessor receiving inputs from sensors to provide indication and operation required by a selected operating program.

4.07 CHAMBER FILL VALVE, VENT VALVE, EXHAUST VALVE—Shall be solenoid operated valves under control of the microprocessor.

4.08 TEMPERATURE CONTROL—Temperature shall be determined by mode of operation selected and shall be automatically regulated by the microprocessor.

4.09 PRESSURE GAUGE—Shall provide a digital readout of pressure in the chamber.

4.10 THERMOMETER—Shall provide a digital readout of the temperature in the steam-discharge line.

4.11 AIR VALVE—Bellows-operated air valve shall automatically operate to eliminate air from the chamber and assure saturated steam.

4.12 SAFETY VALVE—ASME type safety valve shall limit the maximum pressure to 241.8 kPa.

4.13 MATERIALS AND WORKMANSHIP—Material and workmanship shall be of high quality throughout. All units shall be fully inspected for all modes of operations before shipment.